

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) An assay platform for isolating, harvesting, detecting or quantifying a target polypeptide molecule, the platform comprising a substrate, ~~and a polymer matrix attached to the substrate, wherein the polymer matrix binds to target molecules through a binding ligand~~ and a binding ligand attached to the polymer matrix having an affinity for the target polypeptide molecule, the binding ligand being selected from the group consisting of metal chelates, anion exchangers, cation exchangers, hydrophobic binding ligands, antibodies, streptavidin, avidin, biotin, glutathione, protein A, protein G, and protein L, ~~wherein~~ and the polymer matrix is covalently attached directly to the substrate to provide a density of the polymer matrix on the substrate of at least 2 $\mu\text{g}/\text{cm}^2$.

2. (original) The assay platform according to claim 1 wherein the density of the polymer matrix on the substrate is 4 $\mu\text{g}/\text{cm}^2$ to 30 $\mu\text{g}/\text{cm}^2$.

3. (original) The assay platform according to claim 1 wherein the density of the polymer matrix on the substrate is 6 $\mu\text{g}/\text{cm}^2$ to 15 $\mu\text{g}/\text{cm}^2$.

4. (original) The assay platform according to claim 1 wherein the polymer matrix has a binding ligand density of at least 1 nanomole/ cm^2 .

5. (original) The assay platform according to claim 1 wherein the polymer matrix has a binding ligand density of 1.2 nanomoles/ cm^2 to 185 nanomoles/ cm^2 .

6. (original) The assay platform according to claim 1 wherein the polymer matrix has a binding ligand density of 1.5 nanomoles/ cm^2 to 90 nanomoles/ cm^2 .

7. (original) The assay platform according to claim 1 wherein the polymer matrix has a binding ligand density of 1.8 nanomoles/cm² to 15 nanomoles/cm².

8. (original) The assay platform according to claim 1 wherein the substrate is a multi-well plate.

9. (original) The assay platform according to claim 8 wherein the multi-well plate is a 96, 384 or 1536 well polystyrene or polypropylene multiwell plate.

10. (canceled).

11. (original) The assay platform according to claim 1 wherein the substrate is glass.

12. (original) The assay platform according to claim 1 wherein the substrate is plastic.

13. (currently amended) The assay platform according to claim 113 wherein the polymer ~~molecules are natural polymers~~ matrix comprises a natural polymer.

14. (currently amended) The assay platform according to claim 113 wherein the polymer ~~molecules are dextran polymers~~ matrix comprises a dextran polymer or derivative thereof.

15. (currently amended) The assay platform according to claim 113 wherein the polymer ~~molecules are synthetic polymers~~ matrix comprises a synthetic polymer.

16. (currently amended) The assay platform according to claim 113 wherein the ~~polymer matrix binds to target molecules~~ assay platform has the capacity to bind polypeptides having a molecular weight of less than 3.5 kDa in an amount of at least 1

nanomole/cm².

17. (currently amended) The assay platform according to claim 1 wherein the ~~polymer matrix binds to target molecules~~ assay platform has the capacity to bind polypeptides having a molecular weight of 3.5 kDa to 500 kDa in an amount of 0.5 µg/cm² to 20 µg/cm².

18. (currently amended) The assay platform according to claim 1 wherein the ~~polymer matrix binds to target molecules~~ assay platform has the capacity to bind polypeptides having a molecular weight of 10 kDa to 500 kDa in an amount of 1 µg/cm² to 20 µg/cm².

19. (currently amended) The assay platform according to claim 1 wherein the ~~polymer matrix binds to target molecules~~ assay platform has the capacity to bind polypeptides having a molecular weight of 10 kDa to 350 kDa in an amount of 2 µg/cm² to 20 µg/cm².

20. (currently amended) The assay platform according to claim 1 wherein the ~~polymer matrix binds to target molecules~~ assay platform has the capacity to bind polypeptides having a molecular weight of 10 kDa to 350 kDa in an amount of 3 µg/cm² to 15 µg/cm².

21. (currently amended) The assay platform according to claim 1 wherein the ~~polymer matrix binds to target molecules~~ assay platform has the capacity to bind polypeptides having a molecular weight of 10 kDa to 350 kDa in an amount of 4 µg/cm² to 10 µg/cm².

22. (canceled).

23. (previously presented) The assay platform according to claim 1 wherein the

polymer matrix binds to polypeptide target molecules having a molecular weight up to 350 kDa in an amount of at least 2 $\mu\text{g}/\text{cm}^2$.

24. (original) The assay platform according to claim 1 wherein the binding ligand comprises a metal chelate.

25. (currently amended) The assay platform according to claim 24 wherein the metal chelate is a metal chelate derived from iminodiacetic acid, nitriloacetic acid or an analog thereof.

26. - 29. (canceled).

30. (previously presented) The assay platform according to claim ~~1~~ **446** wherein the binding ligand is covalently attached to the polymer molecule through a spacer.

31. (original) The assay platform according to claim 30 wherein the spacer comprises a lysine derivative molecule.

32. (original) The assay platform according to claim 30 wherein the spacer further comprises an aminocaproic acid derivative molecule.

33. (currently amended) The assay platform according to claim ~~1~~ **443** wherein the substrate is a multiwell polystyrene plate, wherein the polymer ~~molecules are dextran polymers~~ matrix comprises a dextran polymer or derivative thereof, wherein the binding ligand is a nickel chelate, and wherein the polymer matrix has a binding ligand density of 1.5 nanomoles/ cm^2 to 7.5 nanomoles/ cm^2 .

34. (currently amended) The assay platform according to claim ~~1~~ **443** wherein the substrate is a multiwell polystyrene plate, wherein the polymer ~~molecules are dextran polymers~~ matrix comprises a dextran polymer or derivative thereof,

wherein the binding ligand is a Gallium or Iron chelate, and wherein the polymer matrix has a binding ligand density of 1.5 nanomoles/cm² to 7.5 nanomoles/cm².

35. (currently amended) The assay platform according to claim ~~1~~ ~~413~~ wherein the substrate is a multiwell polystyrene plate, wherein the polymer ~~molecules are dextran polymers~~ matrix comprises a dextran polymer or derivative thereof, wherein the binding ligand is glutathione, and wherein the polymer matrix has a binding ligand density of 1.5 nanomoles/cm² to 7.5 nanomoles/cm².

36. (canceled).

37. (currently amended) The assay platform according to claim ~~1~~ ~~413~~ wherein the substrate is a multiwell polystyrene plate or a multiwell polypropylene plate, wherein the polymer ~~molecules are dextran polymers~~ matrix comprises a dextran polymer or derivative thereof, wherein the binding ligand is streptavidin, and wherein the polymer matrix has a binding ligand density of 1.5 µg/cm² to 7.5 µg/cm².

38. (currently amended) The assay platform according to claim ~~1~~ ~~413~~ wherein the substrate is a multiwell polystyrene plate, wherein the polymer ~~molecules are dextran polymers~~ matrix comprises a dextran polymer or derivative thereof, wherein the binding ligand is selected from the group consisting of protein A, protein G, protein L, or a mixture thereof and wherein the polymer matrix has a binding ligand density of 1.5 µg/cm² to 7.5 µg/cm².

39. - 112. (canceled).

113. (currently amended) An assay platform according to claim 1 wherein the polymer matrix ~~comprises a plurality of at least two polymers, is a crosslinked mixture of at least two polymers, the crosslinked matrix being formed by~~ (i) combining the substrate with a mixture comprising first and second polymers,

the first polymer possessing a reactive group which upon activation crosslinks the first and second polymers to form the polymer matrix and covalently attaches the polymer matrix to the substrate, the second polymer having an absence of such reactive groups, and (ii) activating the reactive groups of the first polymer in the combination to form the polymer matrix and covalently bind the matrix to the substrate, wherein the density of the crosslinked polymer matrix on the substrate is at least 2 $\mu\text{g}/\text{cm}^2$.

114. - 117. (canceled).

118. (new) The assay platform of claim 1 wherein the substrate is a multiwell plate and the polymer matrix comprises a polysaccharide or a derivatized polysaccharide.

119. (new) The assay platform of claim 1 wherein the substrate is a multiwell plate, the polymer matrix comprises a polysaccharide or a derivatized polysaccharide, and the binding ligand comprises a metal chelate.

120. (new) The assay platform of claim 1 wherein the substrate is a multiwell plate, the polymer matrix comprises a polysaccharide or a derivatized polysaccharide, and the binding ligand comprises a metal chelate of iminodiacetic acid, nitrilotriacetic acid or an analog thereof.

121. (new) The assay platform of claim 1 wherein binding ligand is selected from the group consisting of metal chelates, anion exchangers, cation exchangers, hydrophobic binding ligands, antibodies, and streptavidin.

122. (new) The assay platform of claim 121 wherein the polymer matrix comprises a natural polymer derivative.

123. (new) The assay platform of claim 121 wherein the polymer matrix comprises a polysaccharide derivative.

124. (new) The assay platform of claim 121 wherein the polymer matrix comprises a dextran derivative.

125. (new) The assay platform of claim 121 wherein the polymer matrix comprises a natural polymer derivative and the substrate is a multiwell plate.

126. (new) The assay platform of claim 121 wherein the polymer matrix comprises a polysaccharide derivative and the substrate is a multiwell plate.

127. (new) The assay platform of claim 121 wherein the polymer matrix comprises a dextran derivative and the substrate is a multiwell plate.

128. (new) The assay platform of claim 121 wherein the polymer matrix comprises a dextran derivative, the substrate is a multiwell plate, the binding ligand is a metal chelate and the metal chelate comprises copper.

129. (new) The assay platform of claim 1 wherein binding ligand is a metal chelate and the polymer matrix comprises a polysaccharide derivative.

130. (new) The assay platform of claim 1 wherein binding ligand is a metal chelate and the polymer matrix comprises a dextran derivative.

131. (new) The assay platform of claim 1 wherein binding ligand is biotin, avidin or streptavidin and the polymer matrix comprises a natural polymer derivative.

132. (new) The assay platform of claim 1 wherein binding ligand is biotin, avidin or streptavidin and the polymer matrix comprises a polysaccharide derivative.

133. (new) The assay platform of claim 1 wherein binding ligand is biotin, avidin or streptavidin and the polymer matrix comprises a dextran derivative.

134. (new) The assay platform of claim 1 wherein binding ligand is an antibody and the polymer matrix comprises a natural polymer derivative.

135. (new) The assay platform of claim 1 wherein binding ligand is an antibody and the polymer matrix comprises a polysaccharide derivative.

136. (new) The assay platform of claim 1 wherein binding ligand is an antibody and the polymer matrix comprises a dextran derivative.

137. (new) The assay platform of claim 1 wherein binding ligand is glutathione and the polymer matrix comprises a natural polymer derivative.

138. (new) The assay platform of claim 1 wherein binding ligand is glutathione and the polymer matrix comprises a polysaccharide derivative.

139. (new) The assay platform of claim 1 wherein binding ligand is glutathione and the polymer matrix comprises a dextran derivative.

140. (new) The assay platform of claim 1 wherein binding ligand is an anion exchanger and the polymer matrix comprises a natural polymer derivative.

141. (new) The assay platform of claim 1 wherein binding ligand is an anion exchanger and the polymer matrix comprises a polysaccharide derivative.

142. (new) The assay platform of claim 1 wherein binding ligand is an anion exchanger and the polymer matrix comprises a dextran derivative.

143. (new) The assay platform of claim 1 wherein binding ligand is a cation exchanger and the polymer matrix comprises a polysaccharide derivative.

144. (new) The assay platform of claim 1 wherein binding ligand is a cation exchanger and the polymer matrix comprises a dextran derivative.

145. (new) The assay platform of claim 1 wherein binding ligand is an antibody, the polymer matrix comprises a dextran derivative, and the substrate is multiwell plate.